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ABSTRACT

This paper discusses educational innovation and is comprised of five sections: (1) a review of previous years of educational innovations in the U.S., (2) processes associated with innovation, including an analysis of two national case studies, (3) research findings about the implementation of innovations, (4) a major thesis about centralized decision-making, and (5) an analysis of the need for higher quality educational research and development. The paper concludes with a call for creative and tested educational innovations. An extensive reference list is included. (Author/LD)

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AMERICAN EDUCATION:
INNOVATIONS OF THE FIRST KIND

THE FORTY-THIRD INVITED ADDRESS

November 29, 1978

Each year since 1958 a standing university committee invites two faculty members to address the academic community of Washington State University. The Invited Address gives special recognition to distinguished faculty members. Selection by a campus committee as an invited speaker is the highest honor given to a Washington State University professor by his colleagues. This paper is the first for the 1978-79 academic year and is the 43rd in the series.

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AMERICAN EDUCATION: INNOVATIONS OF THE FIRST KIND

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AMERICAN EDUCATION: INNOVATIONS OF THE FIRST KIND

"Audio Tutorial Instruction," "British Infant School," "Core Curriculum," "Differentiated Staffing," "Individually Prescribed Instruction," "Mastery Learning," "Micro-Teaching," "Team Teaching," "Winnetka Plan". . . . One can run through the alphabet several times over naming educational innovations which abound. Yet, to borrow from Close Encounters, most citizens of this nation, including their teachers, have had only an encounter of the "first kind" with these and hundreds of other educational innovations. That is, they have never had any real experience with them. Recall from the same movie that encounters of the "second kind," required evidence of contact; while an "encounter of the third kind," was actually contacting or experiencing . . . flying saucers . . . or . . . educational innovations: Take your pick.

Those of you who viewed the movie Close Encounters of the Third Kind may have already inferred one major conclusion--educational innovations tend to be more heard about than experienced by personal contact. During the course of this presentation that assertion will be expanded in greater detail.

This paper is comprised of five interrelated sections. Initially I will review some major events of former years that helped to establish a long tradition of educational innovations in the United States of America.

Second, there will be a review of the processes associated with innovation. Within this review, two national case studies will be analyzed. One of these heretofore has never been criticized in the literature; while the second may perhaps receive its first public hearing. Third, a series of research findings about the implementation of innovations will be discussed.

These statements may serve would-be innovators as research hypotheses to be tested further via induction or as guidelines to be applied deductively.

Fourth, a major thesis about the spreading phenomena of centralized decision-making will be briefly discussed.

Finally, I shall conclude with a brief analysis and a few generalizations concerning our need for higher quality educational research and development.

Historical Antecedents

If we examine the development of public educational systems in the United States of America, it becomes apparent that our culture has developed a set of educational traditions valuing not the static, but the dynamic. Change is a value so cherished in our systems of education that it is valued for itself. When viewed from a "change for itself" perspective, the title of William L. Rutherford's paper (1978), "The Madness of Educational Change," may possibly summarize one growing mood about that tradition.

One might even suspect that educators are very busy "reinventing the wheel." But to borrow from "Environmental Sciences," one of the new federally funded curriculum innovations, wheels are not being reinvented by educators; it is, invention that is being reinvented! And that process is one which we are coming to understand more and even beginning to question its efficacy.

Has it always been this way? What are some of the apparent processes of innovation? These are the basic questions which I shall address.

The Initial Set

One of the first major educational innovations which helped to establish our long tradition of change took place with the "Massachusetts Law of 1642." That law provided the basic concept leading to establishment of our public schools. It also precipitated the famous "olde Deluder Satan Act" of 1647. The latter was prescribed by the Massachusetts Bay Colony as it was "one chief

project of the olde deluder, Satan to keep men from the knowledge of the Scriptures;" but the law of 1647 provided that towns had to establish and support schools or face a fine. What is important for this analysis is that the 1647 act marks the first time in human history that the state enforced an obligation on the people to establish a school and educate the children.

To continue support for the public school concept, the Northwest Ordinances of 1785 and 1787 were passed by the Congress of the Confederation. Under these acts, section 16 of each township in the great Public Domain was reserved for educational purposes.

In the framing of the U.S. Constitution, there is no explicit statement about education. This legislative innovation gave to the respective states "or to the people" implied control of education via the Tenth Amendment to the U.S. Constitution.

By not absorbing the institution of public education, the federal government produced yet another major innovation: There would be no minister of education in our country. The lack of this office is difficult for officials of other nations to comprehend. Thus, the stage was set in our early history for acceptance of varied, decentralized and innovative educational activities.

To be sure, educational practices tended to be developed in local districts. Kenneth V. Lottich (1974) maintained that when observing the pattern of local school innovations one could note that they usually began in the New England "cradle" and radiated outward from that focus. Perhaps there is verification for Lottich's theory through the insight of Vermont's Justin Morrill.

In 1862, the Morrill Act provided for the establishment of "land grant" colleges. The Morrill Act was an innovation of intense magnitude for it: (1) provided for instruction in subjects not previously considered worthy of university study, e.g., engineering and agriculture; (2) designed an institution to "promote the liberal and practical education of the industrial classes

in the several pursuits and professions in life;" and (3) recognized an institution where the practical, pragmatic and innovative could be emphasized (Carmichael, 1962).

The land grant college movement is an interesting phenomenon as it was sponsored by forward looking politicians rather than by forward looking academicians! University faculties of the middle nineteenth century were not enthusiastic about their land grant counterparts. The bitter rivalries which ensued are most apparent even today in the control of research, legislative appropriations . . . football conference championships--to list but three critically important arenas.

By 1872 the public high school became another important innovation by virtue of the famous Kalamazoo decision of the Michigan State Supreme Court which held that it was legal to levy property taxes to support public secondary schools.

By this point in time, the mold had become set for American schools, at least at the institutional dimension. In analyzing this very selected set of school related acts, it becomes clear that non-educators formulated the basic policies which affected the conduct of American education. Our lay boards of education and regents still reflect that value.

A Paradox?

From these rather modest beginnings there was yet to emerge in more contemporary society a complex pattern of federal support which creates a paradox. While the U.S. Constitution is silent on the issue of education and while all states have assumed responsibility for education, the impetus for innovation again emanates not from the educators in these decentralized systems, but from the Federal Congress! This support, likewise, must be considered as being innovative, for there is still no recognizable federal or national plan for the schools. At least that is the theory. Observe how individuals, programs, projects or institutions benefit from specific

legislation and appropriations to accomplish Congressional intent. Whenever a pressing social problem emerges, it is to be met by yet another new piece of federal legislation.[1] Thus, the modern public schools have evolved into a congressional instrumentality for social, economic and political change--all under the rubric of "education."

A recapitualtion of selected critical federal acts would include at least the following seven:

1917--Smith-Hughes Act provided grants to States for vocational education.

1944--Serviceman's Readjustment Act (PL 78-346) or the "GI Bill" made higher education available to millions of World War II veterans and helped to cause American higher education to flourish as never before.

1958--National Defense Education Act (PL 85-865) strengthened instruction in science, mathematics, modern foreign languages and other areas, which were "to strengthen the national defense and encourage and assist in the expansion and improvement of educational programs to meet critical national needs. . . ."

1964--Civil Rights Act of 1964 (PL 88-352) established and helped pay for school desegregation in local schools.

1965--Elementary and Secondary Education Act (Pl 89-10) authorized grants for elementary and secondary programs focusing on children from low-income families, school library resources, instructional materials, supplementary education centers, state education agencies and educational research and training. In the same year the Higher Education Act (Pl 89-329) provided categorical grants to universities for programs at all levels.

1967--Education Professions Development Act (Pl 90-35) that further extended higher educational training.

1972--Education Amendments of 1972 (PL 92-318) which, among others, established the National Institute of Education.[2]

The interesting aspect of this tiny sampling of very significant federal legislation is that the federal emphasis for education shifted from institutional

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[1] This observation was also made in 1965 by the then U.S. Commissioner of Education, Francis Keppel, see Professional Reviewer, Vol. 6, No. 1, 1965, pp. 1-2.

[2] U.S. Department of Health, Education, and Welfare, Digest of Educational Statistics 1978. Washington, D.C.: USGPO, 1978, pp. 149-154.

support to a policy of supporting individuals. In this growing pattern, the U.S. Congress seems to have implemented the ideal so eloquently stated in the Preamble of the U.S. Constitution to "promote the general welfare. . . ."

The federal laws noted previously have helped to provide the basis to the expanding educational innovation "industry." While providing evidence for the next statement is difficult, it is apparent that at least 100,000,000 people in our country have been directly affected by just those seven pieces of federal educational legislation. During the last 15 years, the impact of these and other accelerated Congressional actions have been so pervasive that most people including educators, do not recognize the magnitude of change.

As Alvin Toffler (1970) wrote in Future Shock, there is an accelerating pace of change in all areas of our society. There has even been a more rapid pace of legislation to encourage educational innovations from the federal level in the last 20 years. Of course, it must be acknowledged that almost two-thirds of the state legislatures have recently passed "so called" basic education or accountability laws--which could be classified as conservation measures. That is, these state laws are aimed at slowing the processes of innovation so that we may return to some "golden age" of educational test scores--despite the fact that test scores are not quality indicators, per se. If my assumption is valid, that we innovate simply to innovate, there probably will never be a golden age in American Education, for it will have been abandoned in favor of even a more promising practice.

The Process of Accumulation

The processes which seem to be operating are anthropological and political, not "educational." Homer G. Barnett (1953) summarized the basic tenet from anthropology when he wrote that in society: ". . . accumulation results from building upon the past, not a discarding of it; and the amount of past development conditions the amount and variety of what can be done at present" (p. 40).

Barnett also cautioned that innovation and acceptance are two distinct cultural phenomena: and well do educators know that.

Thus, as a culture, we seem not to give our "new" traditions time enough to be listed in textbooks and continually seek to devise new ones to replace those which we perceive are not working quickly enough. We do not, however, discard most past educational practice. In most cases, innovations are modified and simply added to the ongoing educational enterprise. If a picture of innovative practices in the schools looks like a Rube Goldberg device--well, it should.

This leads to an assertion, which although sounds logical, probably won't be taken seriously: If the schools are to be improved greatly, then they must also be modified greatly. The latter implies a revolution rather than adaptation and evolution, as is the process of innovation. John I. Goodlad (1978) will shortly challenge the assumption that "we" know what "we" ought to change in a yet-to-be-published monumental study of "Schooling in America." Goodlad holds that most educational critics don't know what really ought to be changed. Let us drop this point, albeit incompletely discussed, and move to another. (This is in keeping with our tradition to be bored quickly and seek yet something new for stimulation.)

Some Processes of Innovation

One of the questions to be addressed was, "What are some of the processes of innovation?" There is a tendency to read literature and hear presentations at professional meetings from apologists who maintain that "we just do not know enough about the processes of innovation and with just more research and development into the matter we'll have something figured out."

I submit that we have all the necessary generalizations to understand the totality of the process quite thoroughly.

It is widely recognized that there are at least six phases in the process of innovation:

1. Invention. Someone develops or creates an idea which is tranformed into a product or a process.
2. Dissemination. A means is developed to create widespread awareness of the invention.
3. Demonstration. Groups test the invention to determine its feasibility within a specific educational or social environment.
4. Implementation. The invention is incorporated as a functional part of the organization.
5. Abandonment. The organization abandons the invention.
6. Rebirth. The cycle begins anew, in a different setting, time, place and circumstance.[1]

Let us examine these stages with a few contemporary examples.

Invention

The concept of invention is related closely to the Research and Development (R&D) efforts of the country. The federal government is one of the chief contributors to this nation's educational R&D capacity. Between the period of 1953 and 1977, the amount expended on all federal R&D efforts increased from $2,753,000,000 to $21,798,000,000, about an 800% increase. During the same period, the total federal budget increased from $76,107,000,000 to $411,243,000,000 about a 540% increase[2]. For the year 1977, the Department of Health, Education and Welfare (DHEW) and the National Science Foundation (NSF) spent $217,000,000 on educational R&D, with almost $200,000,000 from DHEW alone.[3]

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[1] These six steps are adapted from Ivor Morrish, Aspects of Educational Change. New York: John Wiley & Sons, 1976, p. 121.

[2] Digest of Educational Statistics 1978, Table 194, p. 19[illegible].

[3] Digest of Educational Statistics 1978, Table 192, p. 195.

The 1977 national total of R&D investment in the USA was $21.798 billion. That amount slightly exceeded the Gross Domestic Product (GNP) of either Greece ($20.858 billion) or the Republic of Korea ($19.089 billion) for 1975.[1]

Sources of invention. The invention phase of our educational R&D comes from several sources: private corporations, public schools, colleges and universities, private individuals, eight national educational laboratories, founded under Title IV of the Elementary and Secondary Education Act (ESEA) of 1965, and nine national Research and Development Centers, plus several thousand local school projects funded under ESEA, Title IV, Part C (formerly Title III).

If each of these educationally related sources contributes just one innovation per year, then there will be in excess of 5,000 new educational inventions! Data do not exist to identify all their inventions; however, the National Institute of Education (NIE) reported a total of 661 new educational products for the year 1975 alone.[2]

While my estimated number of 5,000 educational innovations is a prediction, it is probably most conservative. This estimate may be compared to the number of patents issued in 1976, about 70,000.[3] It is, of course, invalid to compare educational innovations, one tiny sector, to that of the entire national sector of patent awards.

To expand further the notion that the above data are very conservative, one datum is provided by P. Kenneth Komoski, President of the Educational Product Information Exchange, a nonprofit education product evaluation

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[1] United Nations, Yearbook of National Accounts Statistics 1976. New York: UN, Vol. 2, Table 1A, pp. 7-8. These are the latest comparative data.

[2] National Institute of Education, 1976 Databook. Washington, D.C.: NIE, 1976, Table 4.14, p.55.

[3] National Science Board, Science Indicators 1976. National Science Foundation, Report of the National Science Board. Washington, D.C.: USGPO, 1977, pp. 109 and 133.

organization, that there are almost 500,000 separate curriculum programs on the market (Schaffarzick and Sykes).

Some costs of invention. In 1976, of $306,815,000 obligated for instructional materials and equipment and programs by USOE, 97% was expended for instructional materials and instructional equipment.[1] These data do not incorporate the National Science Foundation's contribution or any other federal agencies. The NIE estimated that for FY1975 $470 million was the most likely estimate for the nation's federal obligations for educational R&D, alone.[2]

If one assumes a cost of $100,000 for an educational invention, then the product output would be 4,700. So, my estimate of 5,000 new educational inventions per year may be a rather prudent one. Actually, when I computed the NIE budget for 1975 which was $70.4 millions by its 661 new products for that year, the cost per product was $106,505. (However, such a method of cost analysis is far too simplistic to be used as a guage for R&D.)

What is interesting and concomitantly distressing to the nation's colleges and universities whose faculties have been computed to publish about 84% of all the research articles[3] is the next trend. The percent of funds from the USOE and NIE awarded to colleges and universities for educational R&D has steadily decreased. In FY1965 colleges and universities accounted for 77% of the federal education awards. By FY1974 this percentage had fallen to 29%. Who picked up the slack? "Nonprofit organizations": They increased their percentage from 10% in FY1965 to 54% in FY1974.[4]

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[1] Digest of Educational Statistics 1978. Table 161, p. 169.

[2] 1976 Databook, p. 23.

[3] 1976 Databook, Table 4.15, p. 56. Data are for 1969 but would probably be a reasonable estimate for 1978.

[4] 1976 Databook, Table 4.1, p. 39.

Quite obviously, the nation's colleges and universities have lost political and fiscal power to conduct educational R&D! And mind you, there are over 2,500 colleges and universities but only 17 federal R&D "nonprofit" laboratories and centers, plus 22 major contractors and ten school districts (out of 17,000 school districts) who now get the bulk of the USOE and NIE's educational R&D funds! The political match-up: 49 organizations[1] versus over 2,500 college and universities. Little "nonprofit corporation David" has the mighty "University Goliath" on its R&D knees.

Haven't we been told how powerful the universities are in the educational R&D game?

With that quick preview of phase one--invention, let us examine phase two--dissemination.

Dissemination

The private sector spent about $33.46 billion in 1976 on advertising those new and not-so-new products and services which are invented, patented and marketed. In the educational field, advertising, while a sizable component of publishing companies' budgets, is about 1/5 the percentage of their gross receipts when compared to advertising costs of the tobacco industry.[2]

Barriers? One of the barriers to change in the schools is the lack of unified mechanisms by which to expose a critical mass of educators to newly developed products or processes. Richard O. Carlson (1965b) noted that one of the barriers to educational change is the lack of "a change agent" in the schools. The change agent is usually compared to the very successful agricultural extension agent. While Carlson (1965b) called for the incorporation

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[1] Data abstracted by the writer from 1976 Databook, Tables 4.1, 4.2, and 4.3.

[2] U.S. Bureau of the Census, Statistical Abstract of the United States: 1977, 98th edition. Washington, D.C.: USGPO, 1977, Table 1447, p. 845 and Table 1453, p. 847.

of educational change agents in the schools, that concept has, in fact, been tested. Sam D. Sieber (1972) reported the use of charge agents in a study funded by the USOE in the early 1970s. However, the change agent concept, which follows the very successful agricultural model, has not been specifically implemented through either educational or national policy.

The development or invention costs of educational products was previously discussed. To reiterate that point, Eric Broudy (1975) wrote that the Holt, Rinehart & Winston publishing company's Oregon Curriculum (a high school English textbook series) had a developmental cost in excess of $1,000,000. In addition, Holt's elementary reading program cost $9 million! What does this have to do with dissemination? These costs illustrate that when the private sector spends that amount of money in development, they will want to recoup their investment in at least seven years, if not sooner. They will do it through a dissemination strategy of sales representatives who make personal calls on virtually every school district in the USA. In this vein, Carlson's call for educational change agents might not be too outrageous. We may already have them employed--by the private sector!

Dissemination costs and types. One indicator of the federal involvement of dissemination is taken from the pre-college efforts of the National Science Foundation. During the period between 1959 and 1975, the NSF expended $186.6 million for curriculum development (invention) and implementation (dissemination). Of that amount, 43% was spent for implementation, which includes dissemination and in-service education activities.[1]

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[1] National Science Foundation, National Science Foundation Curriculum Development and Implementation for Pre-College Science Education. Report prepared for the Committee on Science and Technology, U.S. House of Representatives, 94th Cong., Washington, D.C.: USGPO, 1975, pp. 303-308, Appendix 7.

Only one example shall be used from the virtually hundreds of different curricula developed under the auspices of the NSF--that of the Biological Science Curriculum Study (BSCS). The NSF invested a total of $19,800,000 in the development and implementation of BSCS biology in the nation. Of that figure, 9.4 million dollars or 47% was spent on implementation. How successful was this effort? By the end of the 1960s more than 3,000,000 high school students were studying BSCS![1] The overall one-time cost--about $6.60 per student. So, while we discuss millions and billions, the cost effectiveness for a successful educational invention may be a trifle when measured on a per capita basis and properly amortized.

An adaptation of dissemination agents is now being tested by the USOE's National Diffusion Network (NDN). The NDN projects are decentralized throughout the nation. By this means, USOE is testing the concept of using centers which disseminate information about validated projects.[2] Considering that there are about 17,000 school districts in the USA, it does seem difficult to assign persons to play the role of educational change agent. Yet, in the agriculture sector, the problem of numbers has been resolved.

In two separate studies done at Washington State University--Orlich and Ruff (1974); and Orlich, Ruff and Hansen (1976)--it was found that the single best source of information about new social studies curricula for Washington's elementary school principals was the textbook company sales respresentatives!

That dissemination of information about educational products and processes is a problem is well acknowledged by the Federal government. In 1965 the USOE

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[1] U.S. Department of Health, Education, and Welfare, Office of Education, Educational Research and Development in the United States. Washington, D.C.: USGPO, 1969: as cited in 1976 Databook, NIE, p. 51, 1976.

[2] U.S. Department of Health, Education, and Welfare, Office of Education, Educational Programs that Work. San Francisco: Far West Laboratory for Educational Research and Development, Vol. 4, Winter, 1977. A validated project is one that does what it is designed to do and has been judged by outside evaluators to be a valid educational product or process.

created and funded a national information dissemination system called "Educational Resources Information Center" (ERIC). The ERIC national system consists of a centralized document processing facility and reproduction service, made operational through 16 specialized and decentralized clearinghouses. Between 1966 and 1975, a total of $37,194,000 had been invested in the ERIC system, or about $4 million per year. The ERIC system may be one of the most extensively used search mechanisms in the world, even being accessible directly by computer terminals. By 1974 this collection had 84,900 entries of educational reports (a large percentage about local school district products and inventions) and 102,000 published articles from selected educational journals.[1]

Even with a massive national effort to disseminate information about educational innovations, the problem of how to make users in the public schools aware of educational innovations still persists as one of the major barriers to change. Federal, state and local networks have been developed to produce a more adequate dissemination system. Yet, when one considers the magnitude of the number of educational innovations, is it any wonder that few innovations ever make it to the classroom? So much for dissemination.

Demonstration

Let us now focus attention on the third phase of the innovative process--the demonstration, trial or adoptive period. Prior to implementing or adopting an innovation, most school districts tend to conduct a short trial period. This is well illustrated in an NIE funded study about the adoption and abandonment of innovative practices in high schools belonging to the North Central Association, i.e., the Midwest. Neil C. Aslin and John W. DeArman (1976) examined the status of 33 innovations. They found that 68.4% were never tried, 14.6% were being tried on a limited basis, 14.7% were fully implemented and operational. Of the responding school officials, 2.3% stated that they tried the

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[1] 1976 Databook, Table 5.3, p. 59.

selected innovations but abandoned them. There seems to be much written about innovations, but there seem to be relatively few real users.

A case study of advocacy. Title IV, Part C (previously Title III) of ESEA is supported to encourage innovations in the public schools. Writing most enthusiastically in 1970, Norman E. Hearn, then a program officer for the USOE, reported after the first three years of ESEA's Title III, that "85% of superintendents returning the questionnaire said the projects would be continued after federal funds expired" (p. 59).

An evaluation conducted by the Rand Corporation between 1973 and 1978 on the same Title III very simply stated, "In most cases, the innovations funded by federal seed money had not taken root" (Berman and McLaughlin, 1978a, p. 12).

How could such discrepant findings take place?

By carefully examining Hearn's (1969) original study it became apparent why there is a most significant discrepancy between his findings and the Rand studies. Hearn's acclaimed "landmark" finding that over 90% of the school districts would continue their Title III, ESEA projects after the termination of federal funding represents a misinterpretation of data of the highest magnitude. What makes it doubly bad is that it went to the U.S. Congress.

The key item in Hearn's questionnaire to superintendents who had Title III grants on which he makes his famous 90% claim reads as follows:

1. In your opinion, will the activities of this project be continued in the school district(s) when the Title III grant expires or if already expired, is the program to be continued? (Circle number)

1	2	3	4	5
/	/	/	/	/
No or not likely	Yes, on a smaller scale	Yes, on about same scale	Yes, on a larger scale	Yes, extended to all appropriate pupils in all schools (Hearn, p. 229)

N.B.: Instrument bias of four positive and only one negative in the five response categories. If there were simply a random set of responses, 80% would be expected to be positive--as a basis of instrument bias alone!

Quoting further from Hearn (1969):

> In the development of this item for the survey instrument it was assumed that each response would indicate the extent to which the project has reached complete adoption. It was intended that "on a smaller scale" resonse would mean a gradual phase-out of the project; that "about the same scale" would mean that the project was still in a "trial" phase; that "larger scale" would mean a degree of adoption; while "extended to all" would mean an adoption in the fullest sense of the word. However, telephone and face-to-face interviews with project personnel and superintendents later indicated that some of these categories were somewhat arbitrary, especially in regard to category (2) "smaller scale" (p. 103).

The farce becomes most evident when one examines Table 9 from Hearn's original study. One page 103 of his study, he classifies three of the five categories as being "no," "phase-out," or "Trial." These three response categories account for 81.6% of his total repondents. Only 18.0% of the responses are actually "yes" categories by Hearn's own definitions!

Table 1

NUMBERS AND PERCENTS OF CONTINUATION OF TITLE III PROJECTS FOLLOWING TERMINATION OF FEDERAL GRANTS

Responses	Number	Percent
No, or not likely	21	8.2
Yes, smaller scale	107	41.8
Yes, same scale	81	31.6
Yes, larger scale	27	10.6
Yes, extended to all	19	7.4
No response on item	1	0.4
Totals	256	100.0

Source: Hearn, Table 9, 1969, p. 116.

Hearn's report must now be considered invalid and unreliable. His work was highly touted and widely publicized. Yet, after ten years his major conclusion is, for the first time, critically reviewed and shown to be an apparent political expediency more than an objective conclusion from survey research. This, despite a select panel of USOE and other personnel who approved the use of a biased major item in the questionnaire.

The Congress was totally mislead about Title III, ESEA continuation rates by Hearn's published data. The rate of continuation should more appropriately have been 18 percent, not the reported 91.8 percent. Hearn's report must be classified as a case study of advocacy for a governmental program, without even a challenge from the field. What is more pitiful, it was accepted by an examining committee for a doctorate at George Washington University. (How could any item "slip through" all these apparently knowledgeable persons--only to be discovered by a listless professor in the Palouse between the fall harvest and the spring planting?)

Who goes for it? There is also another conclusion to explain the low levels of implementation of federally funded projects. The Rand researchers analyzed the apparent motives of those who applied for ESEA monies. The writers of the Rand studies [1] described school district applicants as being divided into two groups: (1) "Opportunists," those who went for the chance to get some federal money because it was there; or (2) "Problem solvers," those who could use the federal money to improve a local situation (Berman and McLaughlin, 1978a).[2] These motives from the extensive eight volume Rand study are supported by an earlier Ford Foundation report, A Foundation Goes to School (1972). The Ford writers noted that after the Ford Foundation had spent about $50,000,000 supporting educational innovations

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[1] See Reference section for the eight studies by Berman, et al.; Greenwood, et al., and Sumner and Zellman.

[2] University grant-swingers may also be classified by these two descriptors.

during the decade of the 1960s, their funded projects were not as important to the school recipients as "business as usual" (p

Quite obviously, when school district per el choose to use a demonstration project, a trial version or even make an adoption of an innovation, it may not be assumed that there is a commitment to implement or maintain the project on any long-range basis. That may be very disappointing news to many persons, especially to the contemporary social engineers of the DHEW and the USOE, those costly remnants of the Great Society movement who gave us our "guns and butter" budgets. The choice between keeping an innovative practice or abandoning it is perhaps one of the few remaining vestiges of "local control." However, being innovative is an esteemed activity, but as John Pincus (1974) concluded, the only real reward for innovators is more work.

Obviously, someone implements: That is the fourth and most crucial phase of the process.

Implementation

Implementation carries with it a connotation of incorporation or permanence. My operational definition requires implementation to be a function of time. I operationally define implementation to mean that an innovative product or process remains at least through one complete adoption cycle, typically six years, and is maintained without major change through that cycle. One six year period corresponds to the typical curriculum or textbook adoption cycle for most public schools.

We know a tremendous amount about implementation. In my opinion, there are about 25 generalizations which could lead to the successful implementation of any worthwhile innovation. This paper will only list 13 of them.

1. Size of a project is unrelated to its success. Both the Ford (p. 38) and Rand studies (Berman and McLaughlin, 1978a) report that size and duration of small grants had as much impact as the larger ones.

The test of Rule Number 1 comes again from the USOE.

In February 1970, the USOE initiated the Experimental Schools Program (ESP) which ultimately absorbed $55,000,000 of the taxpayers money in 18 school districts during the period 1971-1977. A hint of the impact of the ESP on the nation's R&D is implied from the front piece of Raymond T. Coward's (1977) report about the ESP project: "Experiments that yield Light are more worthwhile than experiments that yield Fruit," (n.p.) which he quoted from Francis Bacon.

The April 27, 1976, report to the Congress by the Comptroller General of the United States would not delight in either Bacon's quote or Coward's implication, for as the U. S. Government Accounting Office (1976) investigation team wrote about the ESP, ". . . plans were vague and were written in conceptual rather than operational terms" (p. 10). The same reporters concluded by noting, "While, we agree with HEW that much can be learned from the program, we believe that the program's ability to provide information on the impact of comprehensive educational changes will be limited" (p. 28).

Limited--limited indeed! The program is useless, for ESP did not test any of the powerful or prevailing educational theories, i.e., testable hypotheses, other than some concepts of Individually Guided Education (IGE), a process already well established by the University of Wisconsin's R&D Center, and a few vague concepts about "open education." The ESP projects were hailed as a "bridge between basic educational research and actual school practice" (USDHEW-OE, Experimental Schools Program, 1971, p. 1). Actually they will provide no useable information not already known now or known in 1970!

The basic strategy of ESP was to support a small number of large-scale, comprehensive experiments focusing on research, demonstration, experimentation, documentation and evaluation. Tragicomically, no major experimental conclusions may be drawn, save one. There is nothing too insignificant for the social

engineers in the USOE to fund as long as it's with the taxpayers' money.[1]

Mind you, this 55 million dollar educational R&D debacle came directly after the Associate Commissioner for Research of the USOE wrote that there was "a patchwork of work in all kinds of areas without real focus on any particular need in education" (U.S. Cong., Committee of Education and Labor, 1967, p. 203).

In that same report the USOE Associate Commissioner for Research established how the patchwork would be straightened out.

> . . . The Bureau of Research seeks to improve education through support of research and related activities conducted outside the Office of Education. Through the Bureau, funds are provided for research projects and programs designed to expand knowledge about the educational process, to develop new curricula and improved education programs and techniques to disseminate the results of these efforts to educators and the public, and to train researchers in the field of education. The Bureau is the central source in the Office of Education for curriculum development and tests and disseminates such curricula and other products of its research. . . . (U.S. Cong., Committee of Education and Labor, 1967, p. 203).

The USOE's Bureau of Research, thus, instituted the centralization of research responsibilities to improve programs, plans, and the use of "research funds based on office-wide priorities" (U.S. Cong., Committee of Education and Labor, 1967, p. 203).

With the centralization of the research priorities--don't forget that the priorities are established by USOE officials--the stage was set to reduce the role of the University and establish OE "nonprofit" organizations which would play to the OE party line. While the NIE is now trying to rectify the early decision, the educational R&D horizon seems to illustrate that even greater centralization of R&D policy will be instituted. The request for proposals (RFPs) for R&D studies are designed by those same centralized federal employees. There is no competitive opportunity for truly major or creative works to be

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[1] Let me illustrate the magnitude of $55,000,000 on R&D. At Washington State University during 1974-1977, approximately $55,000,000 was raised from non-state appropriations to conduct about 2,063 R&D projects.

significantly funded by the USOE or the NIE.[1]

What is most pathetic about the USOE's ESP waste is the total ignoring of institutional roles, expectations and functions. The public schools, grades K-12, play the major role of transmission of knowledge. Personnel in these institutions almost never conduct planned research, systematically analyze current trends or publish critical papers. The universities, contrariwise, have the function of analysis, research and the generation of knowledge--in addition to the transmission of knowledge. Any educational theoretician could have quickly deduced that the ESP program would be doomed to failure because the public schools do not have the research capacity to handle the job. And what's more pathetic, Walter R. Borg (1970) and his associates published a similar analysis in a federally funded report!

2. Innovations which rely heavily on technology tend to be short lived.[2] Peter W. Greenwood, et al. (1975) and Anthony G. Oettinger's (1969) analyses support the second generalization. Sophisticated technology has not yet been designed to take the abuse given by young adolescents. When any technological component breaks down, the teacher is quick to give up on the innovation. We must acknowledge that education is one of our nation's most labor intensive industries. While the nation's business sector seeks to eliminate the need for humans as workers, greater numbers of teachers are needed. There is no real savings by replacing teachers with machines--you need both to do an effective job.

3. The implementation of an innovation is directly related to immediate administrator support. Richard O. Carlson (1965a, p. 4), Ronald G. Havelock

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[1] John I. Goodlad's (1978) "Schooling In America" project did recieve NIE funding AND funding from the Danforth, Jennings, Kettering, Mott, Rockefeller, and Spencer Foundations and JDR III and Needmore Funds.

[2] One caution needs to be noted. By 1958 the basic research had been completed. By 1972 the product was developed (hand held calculator). And by 1978 the slide rule (an innovation stemming from 1622, invented eight years after the invention of logarithms) was obsolete.

(1968, p. 77), Goodwin Watson (1967, p. 22) and Orlich, et al. (1972 & 1973) have all substantiated that administrative support is imperative for the implementation of any educational innovation. Teachers cannot implement innovations alone. This, of course, has implications for the training and preparing of administrators, not just for public schools, but for universities as well!

4. Curriculum and instructionally related innovations are easier to implement than those requiring changes in the organization or adminstration. The review of research conducted by Michael Fullan and Alan Pomfret (1977) tends to support this hypothesis as does the work by W. W. Charters, Jr. (1973).

5. There is need for a critical mass of advocates before an innovation may be implemented. Peter W. Greenwood, et al., (1975, p. 65) supports this hypothesis, as does the work of Orlich, et al., (1972 & 1973). Geraldine R. Koller (1977) and Evelyn M. Craven (1978) in two separate studies tended to verify this conclusion.

6. Directives are seldom effective in stimulating the adaption or implementation of innovations. The studies of Harry F. Wolcott (1977, pp. 34-110) and W. W. Charters, Jr., (1973, pp. 62-65) lend support to this generalization.

The best evidence for Rule Number 6 comes from the legislated requirement by the Washington State Legislature in 1971 under the form of substitute House Bill 151. The bill forced all higher education institutions to "develop and implement new and innovative education programs in undergraduate education." The Washington legislature mandated that a total of $1,207,500 be used from institutional operating budgets to innovate in higher education between 1971 and 1973. About 60 innovative projects were funded [1] in all the state's

[1] The total amounts with number of projects are listed for the state with number of projects in parentheses: University of Washington, $385,000 (15); Washington State University, $155,000 (22); Western Washington State College, $100,000 (8); Central Washington State College, $75,000; (5) Eastern Washington State College, $70,000; (5) and Community College Board, $422,500 (5). In 1978 the three state colleges were renamed as universities.

post-secondary institutions. (Engrossed Substitute House Bill No. 151, 1971). With few exceptions, these innovations have been totally abandoned.

7. Organizations which build an adaptive capacity to innovate, tend to accelerate future adaptions. The works of J. Victor Baldridge (1974) and Richard A. Schmuck and Matthew B. Miles (1971) provide some evidence supporting this hypothesis.

8. Cosmopolite sources of information tend to increase the probability of diffusion and adoption of innovations. Everett M. Rogers (1962, p. 5), Donald Orlosky and B.O. Smith (1972, p. 413), and Peter W. Greenwood, et al., (p. 67) all verify this hypothesis. This means that if one desires to develop a capacity to learn about innovations, there is a necessity to travel to various professional meetings where studies about innovations are being reported.

9. It costs additional funds to innovate. The combined studies of Carlson (1965a, p. 63), Ford Foundation (1972), Pincus (1974), Heath and Orlich (1977), and Greenwood, et al., (pp. vi and vii) all substantiate the classic finding that Paul Mort originally suggested in the late 1930's. Mort concluded, among others, that innovative school districts tended to spend more money per student than did non-innovative school districts (Ross, 1951).

What is novel for the period beginning with 1965 (the passage of ESEA) is that the Federal Government in the form of categorical aid is now the chief financial contributor to local innovations.

10. The production of educational innovations and their concomitant acceptance is a political process. The Politics of Educational Innovations, by Ernest R. House (1974), provides an analysis which shows the intricate political correlations between federal fiscal efforts and stimulation of innovations. Or, as I conclude after analyzing the Rand report prepared by Paul Berman, et al., (1975, Vol. V, p.13) and from practical experience, many federal educational programs are continued for political and social reasons despite the

fact that they are not achieving their intended educational objectives.

11. New curricula do what they intend. This conclusion may come as a surprise to many. The current vogue that we have a nation of "dummies" due to new curricula is totally unfounded. Decker F. Walker and Jon Schaffarzick (1974) conducted an intensive review about our new curricula. They concluded that the new programs are superior on their own terms. They cautioned that one cannot use tests developed for "old programs" to show favorable results on curricula developed for "new ones." So, in this sense, Flip Wilson's comment of "what you see, is what you get" is apropos to Educational R&D efforts.

12. The project leader is critical. John I. Goodlad (1975) suggests that the basis for any change should be the single school building. Goodlad's proposal tends to run counter to most change advocates who hold that an entire system must change. However, Goodlad's change concept is most appropriate to higher education innovations. Seldom can an entire institution make a dramatic break with all traditions; but individuals and sub-groups within departments can.

The Rand Corporation studies collectively interpret the role of a project leader as not being critical to the project's success. The Ford Foundation study contradicts the Rand finding by noting that when the original leader left a project, the project tended to be aborted. At the elementary school level it appears that the principal plays the critical role in diffusion, implementation and maintenance of an innovation (Charters, 1973; Broughton, Crouch, and Floyd, 1978; and Orlich, Ruff and Hansen, 1976). In most institutions, the project leader's role may be the most critical variable for long-range success (Baldridge, 1974).

13. Panaceas do not exist. Just as Ponce de Leon was mislead that there was a "Fountain of Youth," there is the same tendency for USOE social engineers continually to plan and fund projects which are panaceas. The classic "Coleman" report of 1966, (Coleman, et al., 1966) which lead to busing as THE integration

mechanism, simply lead to a White flight out of the inner city. James S. Coleman (1975) reported that the implications of his original analysis had not been adequately analyzed. Of course not, no one was asked to predict the extreme reaction of Whites to move out of districts, especially northern urban areas, engaged in rapid desegreation--mainly by busing. Coleman also wrote that when "individuals retain control of some actions that can in the end defeat the policy, the courts are probably the worst instrument of social policy (p. 12)." Precious little good to know that a decade later. The Coleman report illustrates again the absolute danger of one centralized study leading to the formulation of public policy. Any wonder that the U. S. Government Accounting Office (1977) published a report entitled, "Social Research and Development of Limited Use to National Policymakers."

Implications

Centralization and Creativity

A corollary of several generalizations focuses on centralized state policy-making agencies. All states now have the so-called "1202 Commissions." The Washington Council for Postsecondary Education (CPE) is but one example. When R&D efforts by state legislatures are centralized, there apparently are, in fact, no substantial savings to the public, no significant improvement of data collection and the always present factor of bias.[1] When centralized bureaus conduct research, their findings are not usually tested or analyzed by others. Replication and verification are the hallmarks of the scientific method. As governmental policy-making bureaus become centralized, their staff members become advocates for policy, not social researchers inquiring freely about it. Legislatures must heed the classic federal R&D blunders as their studies will surely be subject to bias by "omission" or "advocacy" if they haven't already.

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[1] And, no improvement in the quality of education either, for centralized agencies have no impact on qualitative characteristics--just quantitive ones.

One hallmark of democratic institutions (governments, universities) is that aspect called checks and balances. Truly objective and significant studies cannot emanate from politically oriented bureas.

Given the diversity of the systems of education in these United States, observers will continue to note countervailing trends--adoption and abandonment of innovations, professors and politicians alike giving speeches about innovations. Hopefully, the result will be a nation where all individuals are able to read, write, cipher, as well as think, analyze and evaluate their impinging environments. Through the selection and support, by the federal government, of truly significant educational research, the schools may evolve from industrially oriented institutions to ones which combine the best aspects of a post-industrial revolution nation with the more emerging concerns for humanistic activities.

The innovation business is a lucrative one.[1] Those who are benefiting economically from it will not desire to see any major changes in the current system. Yet, how many GAO reports does this nation's Congress need to show that the centralized efforts which purport to shape our national policy to produce educational innovations are counterproductive in both short and long-range educational developments.

That the effectiveness of federally funded programs remains a critical and long-lasting problem is verified by the U. S. General Accounting Office report (1978). The report writers concluded that the U. S. Congress does not yet have adequate data for appropriate oversight of educational programs. Nor does the Congress have adequate data to improve current educational policies.

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[1] Between the decade of 1966 and 1975, a total appropriation of $1,454,683,000 was spent on educational innovations of all kinds. (USDHEW-OE, Annual Evaluation Report . . ., p. 88, 1976). That amount slightly exceeds the Gross Domestic Product for 1975 for the entire nation of Jordan! (Yearbook, UN, 1976, p. 6). The average spent on innovations for the ten-year period cited is about $145,468,000 per year--hardly peanuts.

Mind you, this report was issued 13 years after the passage of the historic Elementary and Secondary Education Act of 1965!

An Unfortunate Model for Developing Nations

What is more bothersome to me as an educator, not discounting the waste of our fiscal resources, is that foreign nations look to the USA for educational leadership. While one school district is adopting innovation "X", dozens of others are abandoning it. Foreign observers must surely be confused to observe this reckless use of the national budget. Foreign educators must view it much as Coward's quote from Bacon--light yielding, not fruit yielding.

Unfortunately, Third World or developing nations cannot share in our game of centralized educational R&D fiscal irresponsibility. They simply do not have the financial capacities. Neither does the U.S., I might emphatically add. Do we impress our allies that as a nation we are not to be taken seriously as they examine our centralized educational R&D ineffeciencies?

We have a nation of 50 different state school systems. While there is much in common, the over 17,000 school districts are free to adopt or abandon educational innovations as they desire. Consider the latter from the perspective of a minister of education who sends a delegation to the USA to examine and perhaps implement our newest and "promising" educational contributions. Foreign delegations must be bewildered to observe the reckless support from the national budget on poorly organized and ineffective innovative efforts.

The Unstated Assumptions

There is much left unstated, but the evidence overwhelmingly suggests that: (1) federal social engineering in the area of educational R&D has been a failure; and (2) we can expect to observe a general trend to centralize even further. Federal policy makers now in control cannot admit that the 1965-1967 decisions which precipitated centralization were not in the nation's best

educational interests and were errors.[1]

What lessons did we learn? Paul Berman and Milbrey Wallin McLaughlin (1978b) wrote that:

> Seen from the perspective of national policy makers, federal efforts to stimulate educational change have been disappointing. Although evaluators of federal programs may disagree about questions of evidence and measurement, no analyst seriously contends that these programs have produced the massive improvement in student achievement or other student outcomes that were forcast during more optimistic times. The track record casts doubt about the effectiveness of federal intervention in reforming elementary and secondary education and about the wisdom of any continuing federal role (p. 1).

Why this devasting conclusion? Berman and McLaughlin (1978b) wrote, "Past programmatic failure can be traced to three general sources: unrealistic expectations, incorrect assumptions about local school districts behavior and poor implementation" (p. 2).

The three unrealistic expectations were then followed with three invalid assumptions made by the centralized federal policy makers at USOE. The invalid assumptions were: (1) having faith that technology would pull us through, (2) underestimating how long it takes to produce change and (3) overestimating the impact that federal influences have on state and local education agencies (Berman and McLaughlin, 1978b, pp. 4-6). Massive educational failure was the resultant of poor quality decision-making at USOE. The buck cannot be passed!

The appeal of the Great Society's social-educational legislation of ESEA is most eloquently summarized by Gerald Grant (1973). Grant observed, "The Johnsonian education legislation had become bread and butter school programs for every congressional district in the country, and Congress seldom shuts down popular bakeries" (p. 36).

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[1] The NIE will attempt to earmark 3 to 5 percent of its budget for unsolicited proposals to stimulate non-centralized RFPs, noted a memo dated February, 1978 from John W. Christensen, NIE, Associate Director for Administration and Management.

One of the architects of the Great Society educational design was Francis Keppel, then U.S. Commissioner of Education and later moved in 1966 to a newly created post of Assistant Secretary of HEW. Keppel viewed the public schools as an instrument of social planners. His book, The Necessary Revolution in American Education, (1966) provides the rationale and blue print for educational social engineering.

Yet, as a scholar,[1] he noted that when considering social organization, Americans are accustomed to variety. Keppel (1966) wrote, "Duplication is not feared; indeed it is often welcomed under the name of competition" (p. 66). But, social planning welcomes only concensus, not diversity or competition.[2]

Recommendations (or, Is There Hope?)

Given the assumption that programs are supported by the Congress long after they are useful to the people and that there is little quality control in the USOE or NIE, what are some of the alternatives that can be supported?

The Need For Critical Testing

We are not in need of reduction of educational R&D efforts. We are in need of critically evaluating proposed efforts by the centralized decision makers of the USOE and NIE. Too few projects, if any, have truly tested significant educational hypotheses (theories, if you wish).

There is a tendency to fund poorly conceptualized and politically motivated R&D projects, rather than funding well-planned research proposals. As Paul Berman and Milbrey McLaughlin (1978a) noted, USOE planners do not realize that it may take at least five years before a project can be designed, tested, modified and implemented. The USOE is looking for quick pay offs--which never

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[1] He qualifies as one, by virtue of being a former dean of the School of Education at Harvard University.

[2] The USOE's late 1960s, early 1970s Elementary Teacher Education Models give evidence here. All the models are behavioristic--hardly a diverse set!

tend to materialize.[1]

Using Existing Institutions With Role Compatability

One alternative is to utilize the already existing network of Land Grant Universities. They would link with a few selected school districts to work collaboratively to test the best of educational theories. In this manner, we could expect a few top quality R&D efforts to materialize each year. The pay off time, if the theory is correct, requires from five to seven years per project.[2] If such a plan had been adopted by the U.S. Commissioner of Education in 1965 or even 1970, this nation would probably have tested 40 or 50 quality educational theories.

The alternative of using the existing Land Grant structures as a means to implement a decentralized mechanism related to educational research, development, testing and dissemination might be politically and educationally feasible. These universities all stress service in their "mission statements." No member of Congress publicly supports a centralized educational R&D effort. For only a few million dollars we can test the best current theories. In a budget where the Congress plugged in a slush fund of $7,400,000[3] for Title IV, Part C of ESEA, why not study the possibility of field testing a system which made our agricultural research the world's best. In the field of education we expect little in the way of quality from Federal R&D, and we get what we expect.

Other R&D Needs

Yet, the paradox--Federal intervention into the educational field has promoted a continued impetus for innovation. We badly need "think tanks" to

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[1] An example of the opposite is the research of Jean Piaget who has virtually spent one-half a century in establishing his theory of developmental psychology!

[2] The National Science Foundation (NSF) has known about this since 1960!

[3] U. S. Congress, HR 12929, June 14, 1978, p. 21.

generate knowledge by which to solve emerging problems. If any society is to progress it must continue to produce new knowledge. This, for the USA, is a must. We are one of the few post-industrial revolution countries!

We need to apply what we already know about diffusion and implementation of innovations to institutions and agencies desirous of educational change so that future efforts are more successful and efficient than past ones.

We need to evaluate the parameters of any proposed educational innovation so that the invalid and insignificant are discarded; while the valid are tested and diffused similarly to the newly organized USOE, National Diffusion Network.

The basic assumption of centralized social engineering which undergirds federal education legislation is simply to sponsor more federal programs. Francis Keppel (1966) did call on our nation to stress quality in education. However, the impetus for educational innovations has focused on quantity, not increased quality.

It must also be recognized that the Great Society educational programs may have had greater impact on individuals supported by federal projects than on the processes or programs. Yet, one question needs to be raised: Is the Great Society educational rationale a politically motivated one, or an educationally motivated one? I believe it was for "ballots", not "brains."

We need to test ideas before plunging into multimillion dollar fiascos which are funded because they are USOE "party line" ideas. Perhaps this nation needs a private foundation to establish "Centers for Educational and Social Policy Analysis" to monitor Federal R&D efforts, legislation and HEW/USOE/NIE working papers. This could lead to "non-advocate" analyses, and perhaps more fruitful and more important innovative projects.

Conclusion

In the final analysis, our federal education R&D policy has been to generate "Innovations of the First Kind." These will not prepare better, kinder, more intelligent humans. What we need are innovations which can stand the test, the rigorous experiment--not smokey political contests in the backrooms of USOE. We badly need creative and tested educational innovations to which we can point with pride and gladly announce to the world--this was made in the U.S.A.!

REFERENCES

Aslin, Neil C. and John W. DeArman. "Adoption and Abandonment of Innovative Practices in High Schools". Educational Leadership, May 1976, Vol. 33, No. 8, pp. 601-606.

Baldridge, J. Victor. "Political and Structural Protection of Educational Innovations." In Sanford Temkin and Mary V. Brown, Eds. What Do Research Findings Say About Getting Innovations into Schools: A Symposium. Philadelphia: Research for Better Schools, Inc., Publication No. OP-305, January, 1974, pp. 12-15.

Barnett, Homer Garner. Innovation: The Basis of Cultural Change. New York: McGraw-Hill, 1953.

Berman, Paul, Peter W. Greenwood, Milbrey Wallin McLaughlin, and John Pincus. Federal Programs Supporting Educational Change, Vol. IV: Executive Summary. Santa Monica, CA.: The Rand Corporation, R-1589/5-HEW, April 1975.

Berman, Paul, Peter W. Greenwood, Milbrey Wallin McLaughlin, and John Pincus. Federal Programs Supporting Educational Change, Vol. V: A Summary of the Findings in Review. Santa Monica, CA.: The Rand Corporation, R-1589/4-HEW (ABR.), April 1975.

Berman, Paul and Milbrey Wallin McLaughlin. Federal Programs Supporting Educational Change, Vol. I: A Model of Educational Change. Santa Monica, CA.: The Rand Corporation, R-1589/1-HEW, September 1974.

Berman, Paul and Milbrey Wallin McLaughlin. Federal Programs Supporting Educational Change, Vol. VIII: Implementing and Sustaining Innovations. Santa Monica, CA.: The Rand Corporation, R-1589/9-HEW, May, 1978. (a)

Berman, Paul and Milbrey Wallin McLaughlin, "Rethinking the Federal Role in Education." Santa Monica, CA.: Rand Corporation, Rand Paper Series, May 1978, P-6114, p.1. (b)

Berman, Paul, Milbrey Wallin McLaughlin, with assistance of Gail Bass, Edward W. Pauly, and Gail Zellman. Federal Programs Supporting Educational Change, Vol. VII: Factors Affecting Implementation and Continuation. Santa Monica, CA.: The Rand Corporation, R-1589/7-HEW, April 1977.

Berman, Paul and Edward W. Pauly. Federal Programs Supporting Educational Change, Vol. II: Factors Affecting Change Agent Projects. Santa Monica, CA.: The Rand Corporation, R-1589/2-HEW, April 1975.

Borg, Walter R., Marjorie L. Kelley, Philip Langer, and Meredith Gall. The Mini Course: A Microteaching Approach to Teacher Education. Beverly Hills: Macmillan Educational Services, 1970, pp. 224-226.

Broudy, Eric. "The Trouble with Textbooks." Teachers College Record, Vol. 77, No. 1, September 1975, pp. 13-34.

Broughton, Diana K., Mark E. Crouch, and Gary W. Floyd. A Successful Implementation of an Innovation. Pullman: Unpublished Field Study, College of Education, Washington State University, April, 1978.

Carlson, Richard O. Adoption of Educational Innovations. Eugene: Center for the Advanced Study of Educational Administration, 1965. (a)

Carlson, Richard O. Change Processes in the Public Schools. Eugene: Center for the Advanced Study of Educational Administration, 1965. (b)

Carmichael, Oliver C. "A Hundred Years of the Land-Grant Movement." Saturday Review, Vol. 45, April 21, 1962, pp. 58-59, 71-72.

Charters, W. W. Jr., et al. The Process of Planned Change in the School's Instructional Organization. Eugene: Center for the Advanced Study of Educational Administration, 1973.

Coleman, James S., Ernest Q. Campbell, Carol J. Hobson, James McPartland, Alexander M. Mead, Frederick D. Weinfeld, and Robert L. York. Equality of Educational Opportunity. Washington, D.C.: USGPO, 1966.

Coleman, James S. "Population Stability and Equal Rights." Society, Vol. 14, No. 4, May-June 1977, pp. 34-36.

Coleman, James S. "Recent Trends in School Integration." Educational Researcher, Vol. 4, No. 7, July-August 1975, p. 12.

Coward, Raymond T., Ed. Planned Educational Change: The Experimental Schools Experience. Washington, D. C.: U. S. Department of Health, Education and Welfare, National Institute of Education, 1977.

Craven, Evelyn M. "An Evaluation of an Implementation and Dissemination Model for Elementary School Science." Ed.D. dissertation, Washington State University, 1978.

Ford Foundation. A Foundation Goes to School. New York: Ford Foundation, 1972.

Fullan, Michael and Alan Pomfret. "Research in Curriculum and Instruction Implementation." Review of Educational Research, Vol. 47, No. 2, Spring 1977, pp. 335-397.

Goodlad, John I. The Dynamics of Educational Change: Toward Responsive Schools. New York: McGraw-Hill, 1975.

Goodlad, John I. "A Preview of 'Schooling in America'." Phi Delta Kappan, Vol. 60, No. 1, September 1978, pp. 47-50.

Goodlad, John I. and M. Frances Klein. Behind the Classroom Door. Worthington, Ohio: Charles A. Jones, 1970.

Grant, Gerald. "Shaping Social Policy: The Politics of the Coleman Report." Teachers College Record, Vol. 75, No. 1, September 1973, p. 36.

Greenwood, Peter W., Dale Mann, and Milbrey Wallin McLaughlin. Federal Programs Supporting Educational Change Vol. III: The Process of Change. Santa Monica, CA.: The Rand Corporation, R-1589/1-HEW, April 1975.

Havelock, Ronald G. "Dissemination and Translation Roles." In Terry L. Eidell and Joanne M. Kitchel, Eds. Knowledge Production and Utilization in Educational Administration. Eugene: The Center for the Advanced Study of Educational Administration, University of Oregon, 1968, pp. 64-119.

Hearn, Norman E. Innovative Educational Programs: A Study of Their Influence of Selected Variables Upon Their Continuation Following the Termination of Three-Year ESEA Title III Grants. Doctoral Dissertation, The George Washington University, Washington, D. C.: September 30, 1969. ERIC Microfiche, ED 032 448.

Hearn, Norman, E. "A Study of the Adoption Rate of ESEA Title III Innovations When Federal Funds Were Terminated." Phi Delta Kappan, Vol. 52, No. 1, September 1970, pp. 59-61.

Heath, Stanley P. and Donald C. Orlich. "Determining Costs of Educational Technology: An Exploratory Review and Analysis." Educational Technology, Vol. 17, No. 2, February 1977, pp. 26-33.

House, Ernest R. The Politics of Educational Innovation. Berkeley: McCutchan Publishing Corporation, 1974.

Keppel, Francis. Professional Reviewer, 1965, Vol. 6, No. 1, pp. 1-4.

Keppel, Francis. The Necessary Revolution in American Education. New York: Harper & Row, 1966.

Koller, Geraldine R. "The Effectiveness of an Implementation of an Elementary School Science Program with a Science Resource Supply Center." Ph.D. dissertation, Washington State University, 1977.

Lottich, Kenneth V. New England Tranplanted. Dallas: Royal Publishing Company, 1974.

Morrish, Ivor. Aspects of Educational Change. New York: John Wiley & Sons, 1976.

National Institute of Education. 1976 Databook. Washington, D. C.: NIE, 1976.

National Science Board. Science Indicators 1976. Washington, D. C.: USGPO, National Science Foundation, Report of the National Science Board, 1977, 304 pp.

National Science Foundation. National Science Foundation Curriculum Development and Implementation for Pre-College Science Education. Report prepared for the Committee on Science and Technology, U.S. House of Representatives, 94th Cong. Washington, D. C.: USGPO, 1975, pp. 303-308, Appendix 7.

Oettinger, Anthony G. Run, Computer, Run: The Mythology of Educational Innovation. Cambridge: Harvard University Press, 1969, p. 121-122.

Orlosky, Donald and B.O. Smith. "Educational Change: Its Origin and Characteristics." Phi Delta Kappan, March 1972, Vol. 53, No. 7, pp. 412-414.

Orlich, Donald C., Frank B. May, Robert J. Harder, Thomas P. Ruff, and Jacqueline Ormsby. "A Change Agent Strategy: Preliminary Report." The Elementary School Journal, Vol. 72, No. 6, March 1972, pp. 281-293.

Orlich, Donald C., Frank B. May, and Robert J. Harder. "Change Agents and Instructional Innovations: Report 2." The Elementary School Journal, Vol. 73, No. 7, April 1973, pp. 390-398.

Orlich, Donald C. and Thomas P. Ruff. "Informing the Elementary Principal About Curriculum Innovations." The Elementary School Journal, Vol. 74, No. 7, April 1974, pp. 390-392.

Orlich, Donald C., Thomas P. Ruff, and Henry R. Hansen. "Stalking Curriculum: or Where Do Elementary Principals Learn About New Programs." Educational Leadership, Vol. 33, No. 8, May 1976, pp. 614-621.

Pincus, John. "Incentive for Innovation in the Public Schools." Review of Educational Research, Vol. 44, No. 4, Winter 1974, pp. 113-144.

Rogers, Everett M. Diffusion of Innovations. New York: Free Press, 1962.

Ross, Donald H., Ed. Administration for Adaptability, Vol. III. New York: Metropolitan School Study Council, 1951, p. 23.

Rutherford, William L. "The Madness of Educational Change." Educational Technology, Vol. 18, No. 6, June 1978, pp. 19-21.

Schaffarzick, Jon and Gary Sykes. NIE's Role in Curriculum Development: Findings, Policy Positions, and Recommendations. Washington, D. C.: National Institute of Education, February 8, 1977, p. 32.

Schmuck, Richard A. and Matthew B. Miles. Organization Development in Schools. Palo Alto: National Press Books, 1971.

Sieber, Sam D., Daren Seashare Louis, and Loya Metzger. Evaluation of Pilot State Dissemination Programs. New York: Columbia University, Bureau of Applied Social Research, 1972.

Sumner, Gerald and Gail Zellman, Federal Programs Supporting Educational Change Vol. VI: Implementing and Sustaining Title VII Bilingual Projects. Santa Monica, CA.: The Rand Corporation, R-1589/6-HEW, January 1977.

Toffler, Alvin. Future Shock. New York: Bantam Books, 1970.

United Nations. Yearbook of National Accounts Statistics, 1976. New York: U.N., Vol. II, Table 1A, pp. 7-8.

U.S. Bureau of the Census. Statistical Abstract of the United States: 1977, 98th ed. Washington, D. C.: USGPO, 1977.

U.S. Congress. House. Committee on Education and Labor, Study of the United States Office of Education. Washington, D. C.: USGPO, House Document No. 193, 1967.

U.S. Congress. House. "Appropriations for the Department of Labor, and Health, Education, Welfare, and Related Agencies, for the Fiscal Year Ending September 30, 1979." H.R. 12929, 95th Congress, 2nd Session., June 14, 1978, 47 pp.

U.S. Department of Health, Education, and Welfare, Office of Education. Annual Evaluation Report on Programs Administered by the U.S. Office of Education, Fiscal Year 1976. Washington, D. C.: 1976, 73 pp.

U.S. Department of Health, Education, and Welfare. National Center for Educational Studies. Digest of Educational Statistics 1978. Washington, D. C.: USGPO, 1978.

U.S. Department of Health, Education, and Welfare, Office of Education. Educational Programs that Work. San Francisco: Far West Laboratory for Educational Research and Development, Vol. 4, Winter 1977.

U. S. Department of Health, Education, and Welfare, Office of Education. Experimental Schools Program. "1971 Experimental School Projects: Three Educational Plans," DHEW Publication No. (OE) 72-42, 151 pp.

U. S. Government Accounting Office. Better Information Needed for Oversight and Evaluation of Selected Elementary and Secondary Education Programs. Washington, D. C.: PAD-78-35, May 30, 1978, 47 pp.

U. S. Government Accounting Office. Experimental Schools Program: Opportunities to Improve the Management of an Educational Research Program. Washington, D. C.: MWD-76-64, April 27, 1976, 37 pp.

U. S. Government Accounting Office. Social Research and Development of Limited Use to National Policymakers. Washington, D. C.: HRD-77-34, April 4, 1977, 72 pp.

Walker, Decker F. and Jon Schaffarzick. "Comparing Curricula." Review of Educational Research, Vol. 44, No. 1, Winter 1974, pp. 83-112.

Washington, Engrossed Substitute House Bill No. 151, 1971. First Extraordinary Legislative Session, May 10, 1971, pp. 28-39, Chapter 275.

Watson, Goodwin. "Resistance to Change." In Goodwin Watson, Ed. Concepts for Social Change. Washington, D. C.: National Education Association, 1967, pp. 10-25.

Wolcott, Harry F. Teachers Versus Technocrats: An Educational Innovation In Anthropological Perspective. Eugene: Center for Educational Policy and Management, University of Oregon, 1977.